

Amendments to the Claims

1. (Currently Amended) A method for delivering substance into skin via an abrasion device comprising the steps of:

providing an abrader having a plurality of microprotrusion arrays, each array having a plurality of frustoconical protrusions with , each protrusion having at least one scraping edge, wherein the frustoconical protrusions within each individual array have aligned scraping edges and each array is positioned within the abrader such that the scraping edges of each array are not aligned with another array;

positioning the abrader device at a delivery site on the skin of a patient;

applying a substance to the skin of a patient at the delivery site ; and,

mechanically rotating the protrusions of the abrader device against the skin with sufficient force to disrupt and substantially penetrate the stratum comeum of the skin, thereby creating intersecting furrows in the skin by the rotation of scraping edges of the abrader.

2. (Original) The method according to claim 1, wherein the mechanical rotation of the protrusions forms an abraded area that increases the permeability of the skin to the substance and permits transfer of the substance through the abraded area into the skin.
3. (Original) The method according to claim 1, further comprising the step of providing a housing that surrounds the mechanically rotating protrusions, where the housing, which remains stationary during the

rotation of the protrusions, keeps the skin of a patient, at the delivery site, taut.

4. (Original) The method according to claim 1, further comprising the step of monitoring the force with which the protrusions on the abrader device is applied against the skin.
5. (Original) The method according to claim 3, wherein the housing holds the patient's skin at the delivery site in place as the protrusions of the abrader device are rotated against the skin to be treated.
6. (Original) The method according to claim 1, wherein the protrusions are microprotrusions and an array of microprotrusions are mechanically rotated.
7. (Cancelled)
8. (Original) The method according to claim 1, wherein the substance is applied on the skin of the patient at the delivery site before the abrader device is positioned at the delivery site.
9. (Original) The method according to claim 1, wherein the substance is applied on the skin of the patient at the delivery site simultaneously as the abrader device is positioned at the delivery site.
10. (Previously Presented) The method according to claim 1, wherein the substance is pre-applied or coated on the protrusions before the abrader device is mechanically rotated.
11. (Original) The method according to claim 6, wherein the rotation of the array of microprotrusions forms circular furrows, and some of the furrows intersect other furrows thereby increasing the amount of surface area through which the substance can be absorbed.

Claims 12-22 (Cancelled)

23. (Currently Amended) A method for delivering substance into skin via a microabrader device comprising the steps of:

positioning the microabrader device at a delivery site on the skin of a patient, said microabrader device having a support and a plurality of microprotrusion arrays, each array having a plurality of frustoconical microprotrusions coupled to the support where each of said microprotrusions having at least one scraping edge and a length to abrade the stratum corneum wherein the frustoconical protrusions within each individual array have aligned scraping edges and each array is positioned within the abrader such that the scraping edges of each array are not aligned with another array; and

rotating the microabrader device against the skin at the delivery site with sufficient force so that the plurality of microprotrusions disrupt and penetrate the stratum corneum substantially without piercing the stratum corneum thereby creating intersecting furrows in the skin by the rotation of scraping edges of the abrader and allowing a substance to be delivered into the skin of a patient at the delivery site.

24. (Cancelled)

25. (Original) The method according to claim 23, wherein the rotating step is accomplished by mechanically rotating the microabrader device.

26. (Original) The method according to claim 25, wherein the rotating step abrades a localized area of skin thereby increasing the resultant efficiency of drug or vaccine delivery.

27. (Currently Amended) A method for delivering substance into skin via an abrasion device comprising the steps of:

providing an abrader having a plurality of microprotrusion arrays, each array having a plurality of frustroconical protrusions with at least one scraping edge wherein the frustroconical protrusions within each individual array have aligned scraping edges and each array is positioned within the abrader such that the scraping edges of each array are not aligned with another array;

positioning the abrader device at a delivery site on the skin of a patient;

applying a substance to the skin of a patient at the delivery site; and,

mechanically rotating the protrusions of the abrader device against the skin with sufficient force to disrupt and substantially penetrate the stratum corneum of the skin, wherein the rotation is about an axis substantially perpendicular to the skin, thereby creating intersecting furrows in the skin by the rotation of scraping edges of the abrader.

28. (Previously Presented) The method according to claim 27, wherein the mechanical rotation of the protrusions forms an abraded area that increases the permeability of the skin to the substance and permits transfer of the substance through the abraded area into the skin.

29. (Previously Presented) The method according to claim 27, further comprising the step of providing a housing that surrounds the mechanically rotating protrusions, where the housing, which remains stationary during the rotation of the protrusions, keeps the skin of a patient, at the delivery site, taut.

30. (Previously Presented) The method according to claim 27, further comprising the step of monitoring the force with which the protrusions on the abrader device is applied against the skin.
31. (Previously Presented) The method according to claim 29, wherein the housing holds the patient's skin at the delivery site in place as the protrusions of the abrader device are rotated against the skin to be treated.
32. (Previously Presented) The method according to claim 27, wherein the protrusions are an array of microprotrusions and are mechanically rotated.
33. (Previously Presented) The method according to claim 27, further comprising the step of translating said protrusions along said axis while rotating said protrusions about said axis, thereby disrupting the skin with both a rotating and translating motion.
34. (Previously Presented) The method according to claim 33, further comprising the step of providing a housing that surrounds the mechanically rotating and translating protrusions, wherein the housing, which remains stationary during the rotation and translation of the protrusions, keeps the skin of a patient, at the delivery site, taut.
35. (Previously Presented) The method according to claim 33, further comprising the step of monitoring the force with which the protrusions on the abrader device is applied against the skin.
36. (Previously Presented) The method according to claim 33, wherein the housing holds the patient's skin at the delivery site in place as the protrusions of the abrader device are rotated against the skin to be treated.

37. (Previously Presented) The method according to claim 1, wherein the mechanical rotation of the protrusions is about an axis substantially perpendicular to the skin.
38. (Previously Presented) The method according to claim 23, wherein the rotation of the protrusions is about an axis substantially perpendicular to the skin.
39. (Previously Presented) The method according to claim 37, further comprising the step of translating said protrusions along said axis while rotating said protrusions about said axis, thereby disrupting the skin with both a rotating and translating motion.